Washington Park Arboretum

BULLETIN

ELISABETH C. MILLER LIBRARY
UW Botanic Gardens
Box 354115
Seattle, WA
98195-4115
Q.3

Summer 2008 $5

The Washington Park Arboretum Bulletin is a benefit of Arboretum Foundation membership. For information on membership or advertising opportunities, contact the Arboretum Foundation at 206-325-4510 or gvc@arboretumfoundation.org.

Washington Park Arboretum

The Arboretum is a 230-acre dynamic garden of trees and shrubs, displaying internationally renowned collections of oaks, conifers, camellias, Japanese and other maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully co-exists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington Botanic Gardens and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

Graham Visitors Center

Open 10 AM—4 PM daily;
holidays, NOON—4 PM.
Closed University of Washington holidays.
The Arboretum is accessible by Metro Transit buses #11, #43 and #48. For more information: www.transit.metrokc.gov

Arboretum Foundation

The Arboretum Foundation's mission is to create and strengthen an engaged community of donors, volunteers and advocates who will promote, protect and enhance the Washington Park Arboretum for current and future generations.

2300 Arboretum Drive East, Seattle, WA 98112
206-325-4510 voice / 206-325-8893 fax
gvc@arboretumfoundation.org
www.arboretumfoundation.org
Office hours: 8:30 AM—4:30 PM weekdays
Gift shop hours: 10 AM—4 PM daily

Officers of the Arboretum Foundation
Board of Directors

Paige Miller, Executive Director

John Johnston, President
Barbara Wright, Vice President
Christine Dwight, Vice President
Mary Ann Odegaard, Vice President
Tim Diller, Treasurer
Della Balick, Secretary
Neal Lessenger, Immediate Past President

University of Washington Botanic Gardens

The University of Washington manages the Arboretum's collections, horticultural programs, facilities and education programs through the University of Washington Botanic Gardens. It owns some of the land and buildings and all of the collections.

206-543-8800 voice / 206-616-2871 fax
Office hours: 10 AM—4 PM weekdays
www.uwbotanicgardens.org

Sandra Lier, Interim Director

Seattle Parks and Recreation

The City of Seattle owns most of the Arboretum's land and buildings. Seattle Parks and Recreation is responsible for park functions throughout the Arboretum and manages and operates the Japanese Garden.

206-684-4556 voice / 206-684-4304 fax

Washington Park Arboretum Bulletin

Jan K. Whitner, Editor
Cynthia E. Duryee, Copy Editor
Constance Bollen, cbgraphics Graphic Design
Joy Spurr, Photography (unless otherwise noted)

Editorial Board

Janine Anderson, Writer
Niall Dunne, Communications Manager, Arboretum Foundation
Cynthia E. Duryee, Writer/Editor
Lorene Edwards Forkner, Writer
Polly Hankin, Edmonds Community College
Daniel J. Hinkley, Author, Lecturer, Horticultural Consultant
Steven R. Lorton, Former Northwest Bureau Chief, Sunset Magazine
Ciscoe Morris, Horticulturist
Myrna Ougland, Two Cats Nursery
Christina Pfeiffer, Horticultural Consultant
Richie Steffen, Coordinator of Horticulture, Elisabeth C. Miller Botanical Garden
Brian R. Thompson, Elisabeth C. Miller Library, University of Washington Botanic Gardens
Cass Turnbull, Plant Amnesty Founder
Martha Wingate, Writer
Phil Wood, Garden Designer & Writer

Botanical Editors

Randall Hitchin, Plant Collections Manager, University of Washington Botanic Gardens
Martha Wingate

Summer 2008 Volume 70. Issue 2.

© 2008 The Arboretum Foundation.

ISSN 1046-8749.

Contents

2 Little Gustav's Tree
—Paige Miller

3 Mulch, An Epic: Part II
—Cass Turnbull

8 The Arboretum: An Irreplaceable Habitat for Birds—*Herb Curl, Jr.*

12 The Not-Quite-White Garden—
Niall Dunne

16 *Nothofagus*—Southern Beeches
—Janine Anderson

24 Three Years in Seattle—
David Mabberley

30 **In a Garden Library:** The Bartrams and Emily Dickinson: Lovers of Plants—*Brian Thompson*

ABOVE: The seven-foot tall tree peony *Paeonia suffruticosa* 'Mrs. William Kelway' displays glowing, double white flowers in early June in the Pacific Northwest. Read about more plants with white flowers on page 12.

ON THE COVER: Wood ducks overwinter in the Arboretum wetlands. In spring, they nest in trees and produce six to 30 eggs per clutch; hatchlings swim by instinct very soon after birth. For more information on birds found in the Arboretum, turn to page eight. (Photograph: Camden Hackworth, from "The Wild Within: Wetlands of the Washington Park Arboretum.")

Little Gustav's Tree

Gustav Winslow Löber made his arrival just before noon on April 3rd at University Hospital. My daughter, Marta, used her cell phone to call me at the Foundation office and let me know less than fifteen minutes after she gave birth. In no time, I was across the Montlake Bridge to congratulate her and hold my new grandson, less than 40 minutes old. How fortunate I was to be so close by and to share that moment with little Gusti and his parents!

I wanted to do something to celebrate my first grandchild. And, then, I realized the perfect way to do so: a commemorative tree in the Arboretum.

Commemorative trees are available for a $1000 donation to the Arboretum Foundation—which helps us to support the maintenance of this great place for trees. Many people celebrate the life of a special person who has passed away by purchasing a commemorative tree to honor the one they have lost. The staff at the University, who plant and maintain the trees here, makes a selection of newly planted trees available just for that purpose.

But, I thought it would be fitting to match a young tree with a young child. With so many terrific trees here, which one should I choose? I knew exactly whom to ask. So, I went to Randall Hitchin, the Arboretum's plant collections manager, to ask for advice on which tree to select for little Gusti. I wanted a tree that is long-lived, beautifully shaped, and, perhaps, from China—a place I came to love during my many visits there over the past 20 years. Looking at the list of available trees, Randall suggested a Chinese stewartia, *Stewartia rostrata*, "an elegant little tree."

Almost 30 years ago, on meeting my nephew Peter for the first time, I took him to his neighborhood park in Wales. He was just 18 months old—a towheaded toddler who went all around the park, hugging each tree. That connection to his park and to trees, instilled so young, led to a lifetime of loving forest hikes and to a deep respect for nature.

When our little Gusti is just a bit older, I will bring him to the Arboretum and introduce him to "his" tree. He will be able to see how they both grow taller together, and if both are fortunate, live to a ripe old age together.

I hope that Gusti will grow up to love trees and the places that protect them, too. And perhaps one day he will also plant a tree for his first grandchild.

Cheers to you all,

Paige Miller

Paige Miller, Executive Director,
Arboretum Foundation

PAIGE MILLER

INSET: JOHANN ROCHOIL

BACKGROUND: A Chinese stewartia (*Stewartia rostrata*), one of ten *Stewartia* species found in the Arboretum. **INSET:** Paige Miller welcomes her new grandson.

The author concludes her monumental account of mulch, and how to use it.
Part I appeared in the Spring 2008 issue of the "Bulletin."

Mulch, An Epic: Part II

By Cass Turnbull

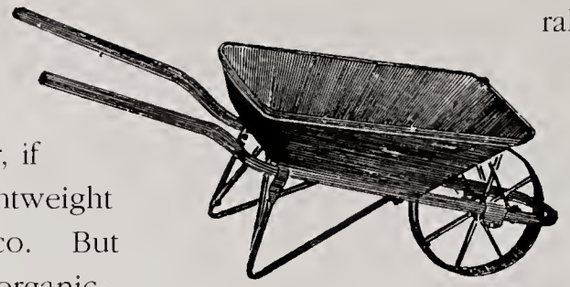
I once espoused the philosophy that most problems in life were due to "too much, too little or the wrong kind"—be it food, boyfriends or pruning. The same is true for mulch. The single most common mistake new gardeners make is to spread their mulch too thin. Generally speaking, it should be between two and four inches deep. On rare occasions, such as mulching around your impatiens or over the crowns of sensitive perennials, it is best to spread it less deeply. But mulch used in shrub beds must be spread at least two inches deep or it won't keep the weed seeds from germinating. On the other hand, if you spread it deeper than four inches, it is a waste of mulch and money. Please remember: Mulch can protect or even improve soil as it decomposes, but do not use it as a substitute for soil. Plants need the inorganic components of real soil to grow healthily.

Spreading Mulch

Gardeners new to mulch often spread it too thin. Here's a way to ensure that doesn't happen: Usually two people, the "wheelbarrower" and the spreader, work on spreading the mulch. Once the "wheelbarrower" dumps a load of mulch, the spreader can use her or his feet to quickly push around the mulch to the right depth. The spreader constantly checks the depth of the mulch being spread by pushing fingers down into the just-spread mulch, which should cover the fingers but not the palm. Or the spreader can use, as my husband does, a "story stick"—one that is marked at the correct depth and can be pushed into the mulch to measure it. (An area that is too thin is called a "holiday." The spreader scuffs up the area to indicate that more mulch is needed there.)

Then the spreader stands at the next dumping spot, ready to repeat the process once a new wheelbarrow full of mulch arrives. Sometimes the spreader gets on hands and knees to push the mulch around plants and into awkward areas. When you are a professional, mulching becomes a sort of race between the spreaders and the "wheelbarrower," since time is money when you are working for pay. We professionals have visceral memories of hot days with mulch dust drying in our nostrils, and of rainy days with mulch clods clinging to the corners of our eyes. During those times we are, as they say, at one with the earth.

The spreader also makes sure that mulch is not accumulating inside the base or crown of the shrubs, or up against the trunks of trees. It is important to check this because mulch heaped against the stems of shrubs or trees (even very large ones) can slowly smother and kill them. Really. So the spreader and the "wheelbarrower" need to crawl around on their knees, using their gloved hands to clear around the trunks and stems of woody plants.



It's okay to put a thin cover of mulch over most perennials in the winter, if one is using airy, lightweight compost like Steerco. But heavier manure and organic-rich composts can slow down, or even suppress, perennials. Warnings commonly state that bearded irises rot if their corms are covered up by mulch—although this claim is much debated in chat rooms. No doubt a lot of the conflicting advice has to do with the kinds and amounts of mulch being used. Groundcovers generally thrive in mulch, although you may need to spread it thinly over a patch of existing ground cover.

The worst abuse of mulch is what is known in the landscape industry as the dreaded "mulch volcano." For some inexplicable reason, landscapers actually mound mulch up around the base of trees on purpose! It is not simply bad pruning that afflicts our trees and shrubs; the indignities and atrocities they are subjected to are almost infinite. As John Muir once observed, "God has cared for these trees, saved them from drought, disease, avalanches, and a thousand straining, leveling tempests and floods; but he cannot save them from fools..." My thoughts exactly!

The Finishing Touches

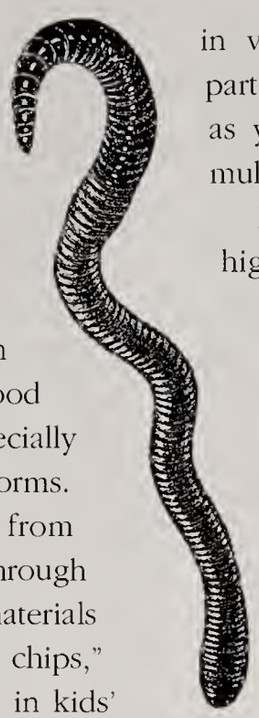
Now to the final rakeout: Make certain that there is no mulch resting against a wood fence, and make a level line (with your gloved hand) where it rests against walls or other hardscape. This will make it look sharp! And for the ultimate in mulch perfection, rake it out "smooth as a baby's butt." Use the fan (spring) rake and the hard (garden) rake right side up to move the mulch around initially. But turn the rakes upside down to smooth it all out. Then lightly push the rakes back and forth over the surface, working backwards out of the bed and covering your footprints.

Kinds of Mulch

One of PlantAmnesty's more popular meetings was called Mulch Wars. We had a panel of expert gardeners talk on the subject of what constitutes a good mulch. Their opinions varied—and as always, the seemingly contradictory advice can be explained by the context in which it is being given. It all depends on what you want your mulch to do and where you are using it.

Bark—that is to say the reddish beauty bark made from the bark of conifers—was the first mulch to be used widely by landscapers and homeowners. It worked really well to suppress weeds. Unfortunately it suppressed the shrubs too. Bark ties up nitrogen the first year after application. But worse yet is the fact that it locks up water in its fibers, making moisture unavailable for the shrubs. We all have a firm image in our heads of certain commercial landscapes that are sparsely populated with "over-Casoroned," under-watered, baked, yellow-leaved, sheared shrubs surrounded by seas of red beauty bark. These are things that go together. Bark also gives you tiny painful slivers in your hands when you weed in it; those slivers also get into your gloves to torture you

later in some other garden. And who needs any more negative reinforcement for weeding? I think I speak for all horticulturists, if not all landscapers, when I say, bark is the "wrong kind" of mulch.



Bark is not to be confused with "wood chips," which are made from the wood, not the bark, of trees. Wood chips are very good for plants, especially trees. Wood chips come in several forms. An arborist can give you chips from pruned-off branches that were sent through the chipper. And you can also buy materials variously called "hog fuel" or "play chips," which are used to cover the ground in kids' playgrounds. These materials come in big, coarse pieces that are not particularly nutrient rich. They fairly closely mimic the natural forest floor. The good news about large-particle mulches is that they are really good for air and water penetration, they don't compact, and they last a long time. And you can often get arborist chips free. The bad news is that large-particle mulches aren't as attractive as fine-particle mulches.

I was ecstatic when the sawdust-based mulches came on the scene 20 years ago. I was, and still am, a proponent of Steerco. Steerco is just one brand name for a sterile mulch made of hot-composted sawdust and manure. Similar products are made of composted sawdust and urea. Many gardeners eschew Steerco and similar products because, contrary to what the name might indicate, the product has little nutrient content. They prefer those mulches made out of composted "green" stuff, and those with higher manure contents. But I like Steerco because it is light-weight, beautiful, effective at suppressing weeds, can be used in and around delicate plants, and it doesn't fertilize the plants. I mostly work in mature landscapes where things are already "too big" and established perennial beds are running rampant. I would prefer that the plants slow down, not increase in vigor! Steerco is dark-colored and fine-particled. It looks like good garden soil. But, as you will recall, neither it, nor the other mulches, are soil.

Next on the list are mulches with a very high organic content. Anybody who has ever made compost out of sod, grass clippings, leaves or weeds, and thus experienced the miracle of making glorious, rich, beautiful, sweet- smelling earth out of "waste," becomes a convert for life. Several years ago the City of Seattle decided to reduce the amount of garbage in our landfills by splitting its dumping grounds into two areas: organic and inorganic. (Mixed loads were no longer acceptable.) The City contracted Cedar Grove to haul away the organic, or "clean green" yard waste, which Cedar Grove then composts and sells back to us. The guys at the dump thought gardeners would be upset at the new regulations: Instead we were relieved of the guilt of having to waste all that great organic stuff.

The mulches with high organic content (composted leaves, grass, weeds, perennial tops), and those with more manure, have a lot of nutrient value. As they decompose over time, they continuously release more "fertilizer," if you will, into the soil. They also feed the whole microcosm of bacteria, fungi and other life forms that make a soil healthy. And as they are pulled down into the soil profile by worms, they condition the soil too. So if you have poor soil, a new garden where you want to encourage quicker growth, or a vegetable patch—or if you simply love rich soil—high organic compost-mulches are for you. If you have ever weeded in the yard of a garden once cared for by a compulsive user of compost, you will find it is a delight. The weeds just fall out in your hands. The soil is so soft, fluffy and sweet-smelling you will never want to go back indoors.

The problem with homemade compost is that the pile is usually not large enough to

Fall Bulb & Plant SALE

THE AREA'S LARGEST BULB SELECTION— HUNDREDS OF CHOICES

Shrubs, ferns, perennials
and more from
a dozen leading vendors!

Sunday, October 5
10 AM – 3 PM

Member Pre-Sale
(Bulbs Only)
Saturday, October 4
Noon – 2 PM

Graham Visitors Center
Washington Park Arboretum

www.arboretumfoundation.org
206-325-4510

Arboretum Foundation

become as "hot" as necessary to cook the weed seeds. When I finally get around to spreading the compost from the bins I have squirreled away in all my customers' yards, I make sure to cover it with another layer of commercial mulch lest I spread weeds as well as joy around the yard.

There are a couple of drawbacks to yard-waste or compost mulches. They are heavier than others. The full import of this occurs to you about the twelfth wheelbarrow load in. And they are even stinkier than sawdust-based composts. This doesn't usually bother the veteran gardener, as the smell is closely associated with healthy beautiful gardens, but new homeowners can be put off a bit. In both cases the smell will subside soon enough, especially after a few good rains. Sawdust and heavier, yard waste-based composts tend to develop a crust over the top after a while. This can stop water from penetrating—exactly what we don't want. (Although I should remark that once I broke the dry crust with my finger on a baking hot summer day, only to find that it had locked in the moisture.) Still, when you find that a crust is forming, you should ruffle it up with a scuffle hoe or scratchy tool. You can do this while out hunting weeds once a month anyway. It will not be much work.

I should also mention that it is quite possible to go overboard with too much of a good thing. Some people become so addicted to organics that they over apply them, which can encourage root rots in trees, make for more diseases and pests, and tie up nitrogen. Just remember that mulch, including high-organic compost, is not soil.

Is Mulch Always Good?

As you may recall from your college anthropology class, there are very few cultural universals—that is, things found in all cultures of the world, such as music, language and an incest taboo. I suspect there are even fewer horticultural universals. I thought for sure that

the use of mulch would be one of them—until I taught in Fairbanks, Alaska. There, they warned that spreading mulch over the ground would keep it frozen long into the summer. It makes me appreciate the ease of gardening in the Pacific Northwest.

Even here there are some plants that you can kill by using a rich, organic mulch. Many drought-tolerant and rock garden plants require an exceedingly well-draining soil, and you can rot them by using heavy composts. I still grieve for the *Lewisia* that I killed this way. I planted it in scree, but then mulched it with compost later. I had been warned not to do it. But as always, I thought it would be different for me.

Summary

To mulch is good, almost always.

But avoid the following mulching mistakes:

- **Mistake 1—You don't weed thoroughly at least twice before mulching**
- **Mistake 2—You mulch too thin, too thick, or use the wrong kind**
- **Mistake 3—You create mulch volcanoes or leave mulch against crowns or the bases of plants**
- **Mistake 4—You reapply mulch too often**
- **Mistake 5—You neglect to do follow-up weeding**

And remember: Mulch is not soil! ~

Cass Turnbull is the founder and spokesperson for PlantAmnesty and a member of the "Bulletin" editorial board. She is the author of "Cass Turnbull's Guide to Pruning," (2nd edition, Sasquatch Press).

Steamboat Island Nursery
uncommon trees, shrubs, vines, perennials, grasses, annuals and temperennials
also pnw native plants

Open through July, and Labor Day weekend through September
Saturday, Sunday and Holidays 10:00-5:00
Open year-round by appointment

360-866-2516 • steamboatislandnursery.com
8424 Steamboat Island Road • Olympia, Washington

The Berger Partnership PS
Landscape Architecture

1721 Eighth Ave. N
Seattle, WA 98109
206.325.6877

bergerpartnership.com

DIG
Floral & Garden
19028 Vashon Hwy SW
Vashon, WA 98070

206-463-5096
206-463-4048 fax
web: dignursery.com
email: dig@centurytel.net

The Country Store & Gardens

10 acres of shrubs, trees, & flowers; including mature specimens for U-Dig. View our website & plant list online, or visit Vashon & enjoy an old fashioned Country Store.
20211 Vashon Hwy SW - Vashon WA 98070
(206) 463-3655
www.countrystoreandgardens.com

The Arboretum: An Irreplaceable Habitat for Birds

By Herb Curl, Jr.

Who knew that the Arboretum is a great place to watch birds? Whenever you visit it for a picnic or a bit of quiet contemplation, or to botanize or view seasonal blooms, be sure to take along a pair of binoculars and a field guide to birds, too; it will make your time there even more enjoyable. Over 50 species of birds call the Arboretum home.

The Arboretum is remarkable not only for its tree and plant collections but also because it remains an oasis in the heart of Seattle. Despite being bisected by the busy Lake Washington Boulevard commuter corridor, and having residential neighborhoods, a golf course and a state highway on its borders, the Arboretum retains an air of tranquility, possibly because its plantings absorb noise so well. Divided into two parts—the forested uplands in the south and the wetlands around Foster Island in the north—the Arboretum provides good habitat for a variety of wildlife.

Its denizens include such medium-sized mammals as raccoons, beavers, nutria and eastern grey squirrels—although most of the mammals, except for the squirrels, are not very conspicuous. On the other hand, the large bird population is usually very conspicuous. Despite the proximity of traffic and people, the birds are tamer than one might expect. In the Skagit River delta north of Seattle, for example, great blue herons will fly off with a startled squawk—a guttural croak such as dinosaurs might have uttered—as soon as you step out of your car. In the Arboretum, the herons accept you as a part of the non-threatening landscape.

One of the reasons that perching birds are so common in the Arboretum is the presence of numerous female trees and plants that blossom in several seasons during the year, thus providing the birds with almost continuous sources of food. (In contrast, many parks prefer to plant male trees exclusively, since they do not drop messy flowers and fruits.) Another reason for the large numbers and wide variety of species of birds found in the Arboretum is its rich diversity of plant life: Birds don't care if their food source is native to the Pacific Northwest or non-native. After all, many of the birds themselves are non-native.

We know approximately how many and what kinds of birds visit the Arboretum because of monthly surveys conducted by the Seattle Audubon Neighborhood Bird Project. The Project was established in 1994 to enable birders of all skill levels to connect with the Seattle Parks Department, become advocates for wild birds and bird habitat, and contribute as citizen-scientists to a database of changes in bird populations over time. There are currently seven surveys, with the Magnuson and Carkeek Parks surveys being the longest running. The Arboretum survey began in 2003. Volunteers spend a morning each month noting the numbers of birds they either see or hear while walking a loop that takes them through much of the Arboretum..

Until recently, Foster Island and the wetlands were not covered in this survey, but that omission currently is being corrected. Significant changes in populations become apparent after at least five years of monthly surveys. Apart from major disturbances by

BELOW: A great blue heron wades in the Arboretum wetlands; in the background a nutria swims toward the far shoreline.

INSET: Barn swallows use wetlands mud to construct their nests; they feed on insects hovering over the water.

(Photographs: Michelle A. Burton, from "The Wild Within: Wetlands of the Washington Park Arboretum.")

humans, population trends appear to be most influenced by climate cycles.

Based on preliminary information being collected through the monthly surveys, we already know some facts about which birds favor living in or visiting the Arboretum. Can you guess which is the most abundant bird in the Arboretum? To no one's surprise, it is the American robin, a generalist who eats almost anything organic and is happy to nest close to humans. Robins need mud to construct their nests, and the wetlands provide plenty of that. The second-most common bird is the American crow; Foster Island hosts a large winter roost, from which the crows commute to neighborhoods all over Seattle. Crows, who are extreme food generalists and conceal their nests from predators carefully, are very successful in adapting to the urban environment.

Almost tied for third place are golden-crowned kinglets and black-capped chickadees. Kinglets and chickadees are similar in size, but kinglets are distinguished by white wing bars and brilliant orange or yellow crown patches. Flitting through the Arboretum's conifers year round, these birds hunt for insects unseen by the human eye. Anna's hummingbirds are also common, especially in the Winter Garden during cold weather, when they drink nectar from such winter-blooming plants as *Berberis* (*Mahonia*) and *Sarcococca.*

Which are the least seen but normally occurring birds to be found in the Arboretum? In a way we do not know, since we are not looking for them at all times of the day and year, and since we, as yet, have little information about birds that visit the wetlands. But there are many bird species that we would not expect to see in the Arboretum because it does not provide the type of habitat they require.

Pileated woodpeckers, for example, use trees that are old and decayed to find food and to nest. Woodpeckers, except for northern flickers, are uncommon throughout the city, due to Seattle's general tendency to remove dead and dying trees. American goldfinches also are uncommon in the Arboretum, chiefly because their major food source (Canadian

TOOLS FOR BIRDING

Not all of us are hard-core birders, so here are a few pointers:

— Binoculars —

Although early ornithologists identified birds using a shotgun, we prefer binoculars. Good resolution is more important than "power." Binoculars designated 8 (power) X 32 or 40 (light gathering) are ideal. Wide-angle, lightweight and close-focusing binoculars are beneficial.

— Field Guides —

Sibley, David. "Sibley's Guide to Birds of Western North America." New York: Knopf, 2003. The most up-to-date guide for western birds; also includes accidentals from the east. It is very complete and shows all plumages. Excellent.

Robbins, Chandler S., Bertel Bruun, Herbert Zim, Arthur Singer. "Birds of North America, Revised and Updated: A Guide to Field Identification." New York: St. Martin's Press, 2001. Includes all North American birds; shows basic plumages.

Peterson, Roger Tory. "A Field Guide to Western Birds." New York: Houghton Mifflin and Company, 1989. A classic, but range maps are out of date and the plumage illustrations are simplified.

thistles) and preference for an open-field habitat are not present there. (You may, however, see goldfinches in vacant lots.) For the same reason, starlings are rarely seen in the Arboretum since they like to flock and feed in open spaces.

Water-dependent birds that inhabit wetlands also are missing from our current Arboretum bird list. (Once the Foster Island survey has been in place for a while, we will be in a position to add these species to the Arboretum list.) We can see, however, that today the wetlands provide protection for many overwintering ducks including wood ducks, shovelers, buffleheads, red-breasted mergansers and gorgeous hooded mergansers. And pied-billed grebes, Canada geese and mallards can be found here year round.

The wetlands are a unique regional treasure: There is no equivalent site left on the rest of Lake Washington. And it is a landscape that cannot be mitigated if it is destroyed. This sanctuary is threatened by the construction and operation of the new SR520 bridge; whatever form the bridge project takes, we can all hope that it will allow the birds eventually to return to a welcoming environment.

When and where should you look for birds in the wetlands? Spring, especially March and April, is the best time for observing the migrants that are passing through. You can see the overwintering ducks best by kayak or canoe. (Birds find small watercraft less threatening than walking bipeds.) Small ducks are usually found in the interior waterways, but geese, large ducks, gulls and coots congregate in the vegetated areas and booms of Pontiac Bay. For safety reasons, birding from the SR520 bridge is not recommended. Although serious surveys usually are accomplished by following a defined protocol while walking, sometimes it's very enjoyable just to sit, listen and watch for the Arboretum's birds. As Yogi Berra said, "You can see a lot by watching."

Please contact the author at hcurl55@comcast.net if you would like to participate in a monthly bird survey of the Arboretum wetlands and Foster Island. ~

BIRDS LIKELY TO BE SEEN AND HEARD

American crow

American robin

Black-capped chickadee

Mallard

Stellar's jay

BIRDS LIKELY TO BE SEEN BUT NOT HEARD

Golden-crowned kinglet

Chestnut-backed chickadee

Common bushtit

Dark-eyed junco

Townsend's warbler

A variety of ducks

Great blue heron

BIRDS LIKELY TO BE HEARD BUT NOT SEEN

Bewick's wren

Winter wren

Red-breasted nuthatch

Northern flicker

Spotted towhee

Herb Curl, Jr. is a retired biological oceanographer and serves on the Science and Conservation committees of Seattle Audubon.

The Not-Quite-White Garden

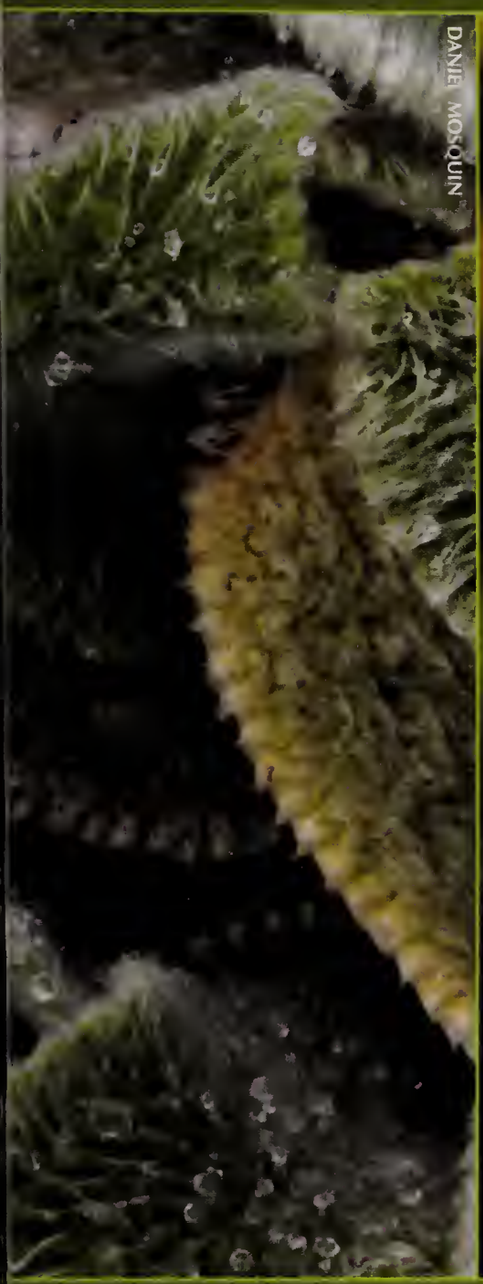
Blooms and leaves for a not-quite-white garden: *Anemone japonica* 'Honorine Jobert,' ➤

By Niall Dunne

Several years ago, I attempted to create a white garden—or more precisely, a garden composed entirely of white-flowering plants—but it didn't quite work out the way I planned.

I was living with my wife, Dana, on the fourth floor of a five-story building on the Upper West Side of Manhattan. We had a small, one-bedroom apartment at the rear of the building that had a lovely terrace overlooking the backyards of all the brown-stones on our block.

The terrace was about 150 square feet, and Dana and I smothered it in pots and planters and gardened to our hearts' content—growing mainly drought-tolerant native perennials, culinary herbs and showy annuals. We even composted our kitchen scraps in a small,


DANIEL MOSQUIN

RICHIE STEFFEN

Stachys byzantina and *Echinacea purpurea* 'White Swan.'

perforated metal garbage can behind a planter in one corner of the terrace. We made pretty good compost—most of the time.

Our next-door neighbor (let's call her Maria, because that was her name) had more or less the same setup: a small apartment with a great terrace. Our terraces weren't adjoined—a gulf about 30 feet wide and four stories deep separated them—but we could see everything Maria did on her terrace and vice versa. She had a nice container garden, too, but wasn't an avid green thumb. Her mother, Cindy, was, though, and every spring she would fly into town from Grand Rapids, Michigan, to stay with Maria for a week or so and plant up the pots.

Cindy was—like her daughter—a sweet, smart, affable woman. Come planting time each year, Dana and I would exchange pleasantries and gardening tips with her, as well as spare pots and soil. We would always give her some of our compost too. (We were so proud of our compost.)

In Memoriam

Then, one year, tragedy struck. We found out that Cindy had been struggling with breast cancer, and after a long, hard battle, she had died—at the age of fifty-seven. It was a terrible loss, and needless to say, a very sad time for Maria. When she got back to New York City after the funeral, Dana and I offered our condolences. We wanted to help out, to do anything, however small, that might ease the pain. It was nearly springtime again, so we offered to plant up her garden. Maria was touched by our gesture and accepted the offer.

Maria had been thinking about the garden before we approached her, and had even come up with a plan—and a beautiful one at that. She had decided to create a garden full of white-flowering plants in memory of her mother. She wanted a white rose in particular—because roses were mother's favorite flower. We told her we would take care of everything.

At the time, I was working as an editor at Brooklyn Botanic Garden. Every May, the Garden hosted an enormous outdoor plant sale, and it was there that I picked out the plants for Maria's white garden. I chose mostly easy-care garden favorites of varying habit, flower and foliage shape, and bloom time.

Perennials included the award-winning garden phlox *Phlox paniculata* 'David,' offering sweetly perfumed domes of white flowers atop tall stems all summer long; the Texas native *Gaura lindheimeri*, bearing butterfly-like white blossoms on tall, airy stems from spring through fall; and *Echinacea purpurea* 'White Swan' with its large, summer-and-fall-blooming, daisy-like white flowers. For the rose, I found a healthy-looking specimen of *Rosa* 'Iceberg,' a pure-white floribunda.

On the weekend after the sale, Dana and I planted Maria's garden. We put the phlox in a big planter with white love-in-a-mist (*Nigella* 'Miss Jekyll Alba'), and underplanted with candytuft (*Iberis sempervirens*). We combined the coneflowers and gaura in another large planter, and edged it with sweet alyssum (*Lobularia maritima*) and white trailing petunias (*Petunia* x *hybrida*). Smaller pots were planted with white impatiens (*Impatiens walleriana*) and *Cosmos bipinnatus* 'Purity.' We lined all the window boxes that hung off the railings of Maria's terrace with white geraniums (*Pelargonium* x *hortorum*). Finally, we planted the rose in a big corner planter all by itself.

White Flowers and Black Gold

When everything was in place, Dana and I top-dressed the planters with compost from our shiny, little bin. We spread it on the containers in our own garden, too, as usual. But there was something strange about the compost that year. Our "black gold" was littered with large, flat, orange seeds—cantaloupe seeds

THE WHITENESS OF WHITE FLOWERS

White is technically not a color. Rather, it is what we perceive when we see all the colors of the visible light spectrum lumped together. A white object reflects all the different wavelengths of visible light at once (whereas a red or blue object reflects just a single wavelength—the red or blue one—and absorbs the rest). The whiteness of a flower petal is caused by white light either bouncing off a pigment in the cells of the petal or being reflected by the physical structure of the petal—or both. Whites in the ivory-to-creamy range generally arise due to the reflective action of flavonoid pigments known as anthoxanthins (also responsible for yellows). Petals in the white-to-pure-white range are often pigment-free; they appear white because the cells in the petals—much like the crystals in snow—are constructed in such a way that they bounce incoming white light around internally and send it back out again. When you press on these petals and collapse their structure, they appear colorless (i.e. the light passes clear through).

to be precise. We must have absent-mindedly thrown them into the bin in late fall, after the microbes in the compost had already finished their business for the year. But we weren't too concerned. We figured the seeds had perished on account of the New York winter (melons are tropical plants, after all!).

The white garden was installed. It was simple but elegant. The geraniums, love-in-a-mist, petunias and candytuft were already flowering, and—as we explained to Maria—the rest of the plants would bloom in succession as the season progressed. She was happy, and so were we.

As the spring came to a close, everything seemed hunky-dory out on the terraces. The white garden was resplendent in the daytime, and even more so at night when the moonlight would illuminate the pale blossoms of the plants. But then one hot sunny day, I noticed a crop of little seedlings popping up from the soil in our containers. They were small and somewhat succulent. As I weeded them out, their stems burst open with ease, releasing a sap onto my fingers that smelled decidedly...melon-like!

Oh no, what had we done? The seeds were alive and kicking! And now that I thought about it, that past winter had been one of the mildest on record in New York. I looked over onto Maria's terrace, and I could see the tips of small melon plants rising above the rims of her containers. I rushed inside to my computer and googled "cantaloupe" and "flowers," and clicked the "image" button to search for photos. As I had feared, the flowers were not at all the color of virgin snow. They were, rather, rich, buttery yellow.

Curbing the Curcurbit

Dana and I didn't know what to do. We were extremely embarrassed. We'd been acting like highly experienced gardeners and designers, but in truth, we were gardening neophytes (with only about five seasons of planting under out belts). And now our cruddy compost was threatening to stain the purity of Maria's vision and her memorial...to turn her garden from white to not quite right.

At first, Dana and I did nothing. We chickened out of telling Maria about the blooper. We thought maybe we could bide our time, catch Maria on her deck one day, and casually invite ourselves over to...um..."check on the plants." But we didn't see Maria for weeks—she may have gone out of town for a while, or we just kept missing her—and in the meantime, the army of invading cantaloupes was advancing quickly.

I remember screaming out loud one evening, in frustration: "I can't wait to get over there and get my hands on Maria's melons!!!" Dana was not amused.

Finally, we saw Maria out on the terrace one morning. But at that point, it was obvious to all and sundry that her potted garden was under attack by twisty, gangly-looking interlopers. So Dana and I swallowed our pride

continues on page 33

THE SYMBOLISM OF WHITE FLOWERS

If ever you needed evidence that humans are complex—or just very confused—beings, look no further than our historical attitudes towards white flowers. At weddings, white flowers are used to symbolize virginity, purity and fidelity; at funerals, they are used—perhaps because of their ghostly, ethereal pallor—to represent death and the afterlife. (In the old days, strongly scented white flowers also served a more mundane funereal purpose—to disguise the odor of decay.) In religious art over the centuries, white flowers have been used to represent joy, enlightenment, redemption, innocence and divine love. In the art of more modern times, such as in Georgia O'Keeffe's sexually provocative paintings of arum lilies, the conventional symbolism is often turned on its head.

ARBORETUM COLLECTIONS

Nothofagus—

RICHIE STEFFEN

Southern Beeches

By Janine Anderson

"Tall, slender New Zealand beauty seeks LTR in PNW. Though delicate and airy in appearance, this transplant is as at home in the mountains as on the coast. Needs room to grow and shelter from wind, cold and strong sun. Attractive year round. Hates soggy soil. Monoecious; disease free."

Interested? Meet *Nothofagus menziesii* (Tawhai, or Silver beech), one of a group of 39 species of evergreen and deciduous trees and shrubs in the genus *Nothofagus*. Although *Nothofagus* species previously were considered to be part of the Fagaceae family—which also includes oaks—genetic tests recently have determined that they warrant their own family, Nothofagaceae.

Native to the temperate oceanic and tropical regions of the Southern Hemisphere,

---

LEFT: The delicate leaves of *Nothofagus antarctica* 'Chillan' unfurl in Seattle's Elisabeth C. Miller Botanical Garden.

BELOW: Temperate rainforests in Chile and Argentina feature *Nothofagus antartica*, a hardy, 50-foot tall deciduous tree with twisting branches and closely set oval leaves.

RICHIE STEFFEN

Nothofagus species are admired by Pacific Northwest plant aficionados and by travelers who have visited them in their native habitat, including the vast, dense forests in Chile and New Zealand. Although these regions supply some of our favorite and best-performing ornamental plants, so far experience with *Nothofagus* in the Pacific Northwest has been limited.

Distribution

The 27 specimen trees of *Nothofagus* found in the current Arboretum collection represent eight distinct species. Three of these *Nothofagus* species—*N. fusca, N. solanderi* and *N. menziesii*—are indigenous to New Zealand. The other five species—*N. antarctica, N. dombeyi, N. obliqua, N. alpina* and *N. pumilio*—are from Chile and western Argentina. Their pattern of distribution around the southern rim of the Pacific Ocean suggests the genus was disseminated more than 30 million years ago, when Antarctica, Australia and South America remained connected. Indeed, fossil remains of *Nothofagus* have been found in Antarctica.

Indigenous specimens of *Nothofagus* are as much as 700 years old. Previously, it was thought that some populations reproduced asexually, through suckering. It has since been shown that sexual reproduction may occur, but the wide distribution of the genus in cool, isolated; high-altitude environments at temperate and tropical latitudes is consistent with the theory that the species reproduced more successfully in cooler areas.

Appearance and Features

Nothofagus species have attractive foliage and an elegant habit. The branches often grow in horizontal layers, and the alternate leaves are small and serrated. Most species grow very quickly; deciduous varieties produce fall color. The plants are monoecious (male and female flowers are in separate clusters on the same plant) and are pollinated by wind; they are small, and conspicuous only *en masse*. The fruits, which resemble immature beech nuts, are comprised of a bristly husk that encloses three small nuts.

Arboretum Collection Species Native to Chile and Argentina

Of the 11 *Nothofagus* species indigenous to South America, eight are deciduous and three are evergreen. In Chile and Argentina, they once were the dominant trees, but southern beech forests in these regions suffered extensively when early European colonizers logged them. Many of the remaining forests are found within the borders of national parks; their wood is still considered valuable for timber, fuel, furniture, floors, construction and other commercial uses.

Nothofagus alpina (Rauli). This deciduous tree forms forests in the Chilean Andes and, more rarely, on Chile's coastal plains. It was virtually unknown in North America before 1960, the same year the Arboretum accessed the elder of our two current specimens. Some local nurseries began offering this very ornamental tree in 1990; the late autumn coloring of its finely toothed, long leaves, which are similar to those of the hornbeam, ranges from a brilliant scarlet to a rich tangerine or yellow. Growing over 80 feet tall, it is hardy to Zone 7 but can be damaged by early and late frosts. Although this species is also called *N. procera*, it has been determined that *N. procera* is actually *N. alpina* with a different appearance at lower elevations.

Nothofagus antarctica (Nire) is a deciduous tree native to southern Chile and Argentina. *Nothofagus antarctica* grows mainly in diminishing temperate rainforests, often in combination with an ornamental plant already popular in the Pacific Northwest—*Drimys winteri*. One of only six species of trees found in the extreme weather conditions of Tierra del Fuego, the southernmost region of Chile, it is hardy virtually anywhere. Its range extends from Cape Horn

into the Andes, where at timberline it takes on a dwarfed, twisted, "krummholz" form. *Nothofagus antarctica* grows over 50 feet tall and has a slender trunk with attractive, scaly, dark-red bark. A 60-year-old Arboretum specimen is almost 60 feet tall, making it the tallest of the species to be found in Washington State. *Nothofagus antarctica* appears delicate because its sparse branches are arranged in open layers. The closely set oval leaves are about an inch long and crinkly, with small, irregular teeth. They emerge as a medium green, becoming yellow to orange in the fall, and have a sweetly scented wax.

Of the seven *N. antarctica* specimens in the Arboretum, six are from a selected seedling variant named 'Puget Pillar,' which is broadly fastigiate (cone-shaped) and has dense, upward-growing branches. The distinctive planar and layered branching of the species is still evident in *N. antarctica* 'Puget Pillar,' but its crown is more tightly whorled and forms a narrower and fuller head. It does not appear to get as tall as the species.

Nothofagus dombeyi (Coihue) is the largest tree native to Chile. It is widely distributed at elevations between 2300 to 4000 feet in the Andes of the Argentine Patagonia and in central Chile, where it forms dense forests on hills with gentle slopes: it is hardy enough to withstand Pacific Northwest winters. A specimen standing 90 feet tall in the Arboretum's Oak Section is the largest *N. dombeyi* in the state. Its form is upright and its habit varies, from open in the shade of the Oak Section to more compact and dense in an exposed site near Rhododendron Glen. The tree appears both dramatic and delicate, with small, dark-green leaves that are thick, lustrous and possessed of toothed borders. The leaves are arranged in orderly and graceful sprays along smooth, gray, undulating branches that are flattened horizontally; the bark of young trees displays horizontal "wrinkles." *Nothofagus dombeyi* is often considered the most ornamental tree in the genus.

Nothofagus obliqua (Roble) is a deciduous tree native to Chile and Western Argentina that grows over 100 feet tall. The two largest specimens in Washington State are in the Arboretum's Oak Section. They are over 50 years old and approximately 70 and 80 feet tall, respectively. The bark is grayish brown and, with age, cracks into plates. *N. obliqua* has an airy crown and slender, wandering branches. Its sprays of wavy, scalloped, one- to three-inch-long leaves become hazy red and yellow in fall.

Nothofagus pumilio (Lenga) is a deciduous tree or shrub native to the central area of the Andes—and to the temperate forests of Argentina and Chile, as far south as Tierra del Fuego. In southern Patagonia it grows to a height of 100 feet. In more northern regions it grows only above 3300 feet, in the form of a shrub. The specimen in the Arboretum is about 40 years old and very upright. The leaves are dark green, about an inch long, and have irregularly lobed margins; they take on yellow and reddish tones in autumn.

Species Native to New Zealand

Four *Nothofagus* species are native to New Zealand; all are evergreen. Three of the four are represented in the Arboretum collection.

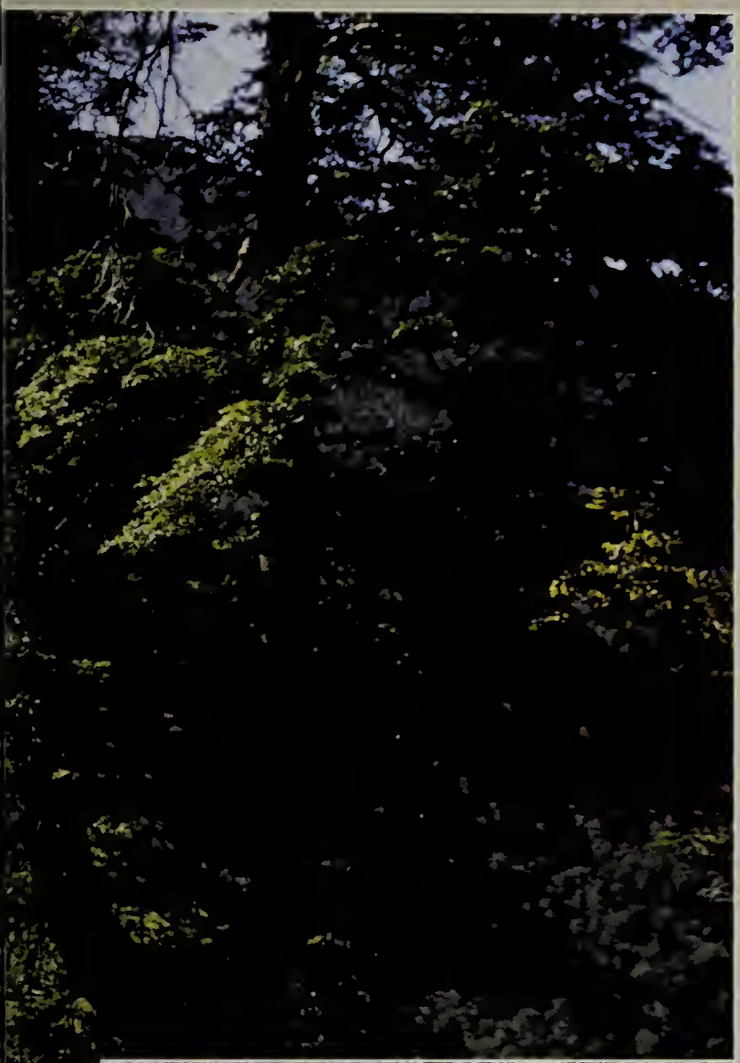
Nothofagus fusca (Tawhairauni, or Red beech) has oval, 1½-inch-long evergreen leaves with deep, sharp teeth. The foliage of young plants is often a bright reddish color, especially in winter. Mature trees of the Red beech, which reach 60 to 100 feet tall, sometimes drop most of their foliage as the new leaves unfold in spring. The bark is dark brown or black and deeply furrowed. In New Zealand, *N. fusca* is a common forest tree throughout the South Island; on the North Island it is found in lowland and mountain forests. The Arboretum specimen, which was accessed in 1970, is planted between Foster Island Road and Duck Bay and has leaves that are larger than its New Zealand counterparts.

RICHIE STEFFEN

Nothofagus menziesii (Tawhai, or Silver beech) probably derives its common name from its silvery white bark, which is particularly evident on younger specimens. It ranges in distribution from lowland to mountain altitudes, grows somewhat taller than the Red beech, and is the most prevalent southern beech in New Zealand. The oval, dark-green, evergreen leaves are smaller than those of *N. fusca*; when seen from below, the foliage has a pleasant lacy effect. The two specimens in the Arboretum collection were accessed in 1990 and have yet to reach full maturity.

Nothofagus solanderi (Tawhairauriki, or Black beech) is an evergreen species distinctive for its small, shiny, untoothed leaves; they feature a whitish tomentum on their undersides and are arranged in fanlike sprays. Black beech has a distinctively rough, furrowed, dark-gray bark. It is one of the hardiest of the New Zealand species and one of the few that has conspicuous flowers,

ABOVE: Central Chile and Patagonia host vast stands of *Nothofagus dombeyi*.



JANINE ANDERSON

which are red. Growing 40 to 70 feet tall, older trees have a somewhat tiered look, and they are smaller and slower-growing than other species. Two young specimens were transplanted in the Arboretum several years ago to a site near the Lookout Gazebo; owing

ABOVE LEFT: The furrowed bark of a *Nothofagus dombeyi* displays holes made by sapsuckers.

ABOVE RIGHT: The form of *N. dombeyi* varies from compact to open, depending upon its habitat.

Pacific Connections Garden

RIBBON-CUTTING CEREMONY

Please join the University of Washington Botanic Gardens, Seattle Parks and Recreation, and the Arboretum Foundation to celebrate the opening of Phase 1 of the new Pacific Connections Garden at Washington Park Arboretum.

Saturday, September 20th

The distinctive bark of a monkey puzzle (*Araucaria araucana*), the first new plant accessioned into the Pacific Connections Garden. (Photo by Randall Hitchin.)

Watch for details on www.arboretumfoundation.org, or call us at 206-325-4510.

Arboretum Foundation

A celebratory event for Pacific Connections Garden donors will be held on Friday, September 19.

to either their exposed location or their sensitivity to transplanting or both, their leaves turned brown and crisp and are just beginning to recover.

Nothofagus solanderi var. *cliffortioides* (Mountain beech) is similar to the species but grows slightly smaller and is found at higher elevations in its native habitat. Its leaves are smaller, thicker and more pointed. Although this variety first was planted in the Arboretum in 1954, the four specimens currently in the collection were accessed less than 20 years ago. They are blemished by winter cold, and at least one early Arboretum specimen succumbed to frost damage.

The Future of *Nothofagus* in the Pacific Northwest

Nothofagus species have been grown in the Arboretum since about 1950. Although some specimens have been lost over the years—mostly owing to winter damage—the Arboretum continues to test this genus for its garden-worthy characteristics. With appropriate shelter, the evergreen species from New Zealand should perform well; indeed, they flourish with some regularity in British gardens. Aside from its tendency to suffer in hard frosts, southern beech is quite easy to cultivate. The Arboretum specimens are relatively free from disease and insect problems. *Nothofagus* grows better in loose, well-drained soil than in the heavy soil found in the Arboretum's Oak Section, and neither full shade nor a highly exposed site is recommended. Unlike the true beech, it does not grow well on dry, chalky soil. The roots are very sensitive to dessication, so extreme care should be taken during transplantation.

The only real drawback to the use of southern beeches in Pacific Northwest gardens is that they require a great deal of space to

Arboretum Shop
WASHINGTON PARK ARBORETUM

The Summer Wedding Table

The Arboretum Shop is offering beautiful, botanically inspired items for the nuptial table, including:

- **Napkin rings**
- **Serving utensils**
- **Serving dishes**

Manufactured by Table Art, this heirloom-quality tableware is cast from bronze and finished with gold and silver.

Ten percent discount for members

10 AM–4 PM Daily

Pacific Office Automation thanks the many dedicated employees and volunteers whose hard work makes it possible for all of us to enjoy the Arboretum.

PACIFIC OFFICE AUTOMATION
— PROBLEM SOLVED —
www.PacificOffice.com

grow. More and smaller varieties are likely to be developed by nurserymen in the future. The Miller Garden in north Seattle recently planted a golden form of *N. antarctica* called 'Chillan,' but so far it appears to grow almost as large as the species.

If one has the space, *Nothofagus* species are worth growing for their delicate, lacy habit. Of the specimens I observed in the Arboretum, I was most taken with Silver beech (*N. menziesii*); I liked its small, delicate, Azara-like leaves and the fact that its late-winter foliage did not have the spots I observed on the specimens of Mountain beech (*N. solanderi* var. *cliffortioides*). That being said, the two Arboretum specimens were planted less than 20 years ago, so it's a little too soon to say how the Silver beech will perform (and grow) with age. ~

Janine Anderson is co-owner of Anderson-LeLievre Landscape Design and a member of the editorial board of the "Bulletin." She has been a Washington Park Arboretum guide since 1997 and, more recently, has begun leading Green Building tours at the Center for Urban Horticulture. "Sommarstuga," a display garden Janine designed for the 2008 Northwest Flower & Garden Show, won the Founder's Cup (Best in Show), the Sunset Western Living Award and a Gold Medal. Visit her website at http://www.anderson-design.net/.

Janine will lead an Arboretum tour featuring *Nothofagus* on Saturday, July 19, from 10:00 a.m. to 11:30 a.m. The tour will begin at the Graham Visitor Center. No registration is required. For more information, call (206) 685-8033.

ABOVE: The Pinetum's drainage and walkways were improved during the time David Mabberley served as director of the University of Washington Botanic Gardens (UWBG.)

LEFT: Merrill Hall hosts the offices of the UWBG, the Otis Douglas Hyde Herbarium and the Elisabeth C. Miller Library.

RIZANINO H. REYES

The most recent director of the University of Washington Botanic Gardens looks back over the years (2005-2008) of his tenure—a critical period in the Arboretum's development.

Three Years In Seattle

By David Mabberley

Although my inclination always is to look forward, I hope that readers of the "Bulletin" will indulge my looking back at the three years I spent at the University of Washington in order to reflect on what was achieved during that time.

The Birth of the University of Washington Botanic Gardens

Once I accepted the position of director, my first task was to bring together a number of entities to form a united organization with an "umbrella" name. Of these entities, by far the most widely known at the national and international level is the Washington Park Arboretum, managed jointly by the University and the City of Seattle and supported by the Arboretum Foundation.

Shortly after my arrival in early 2005, the staff and faculty based at the Arboretum and at Merrill Hall met in a strategic planning session. In the course of an afternoon, an Arboretum staff member proposed, and we all approved, a new name for the organization: The University of Washington Botanic Gardens (UWBG). Together we composed both vision and mission statements, the vision statement being:

> *As an international hub for plant science, information, teaching and stewardship, we will promote an educated, inspired and engaged society dedicated to sustainable ecosystem management.*

Within weeks the University adopted the new name—and we were launched! Today, all the components of a modern botanic gardens organization are included under the UWBG umbrella—gardens, library, herbarium and laboratories. The UWBG includes Washington Park Arboretum, the Union Bay Natural Area and the Union Bay Gardens.

As UWBG also manages the shorelines of Union Bay, this means that except for the Montlake Cut, the Gardens' lands and/or collections extend from Laurelhurst to Madison Street, effectively forming what we might term the "Central Park" of Seattle. The tentacles of the Arboretum spread throughout the rest of UWBG in that native plant propagation for the whole complex is carried out at the Arboretum, whilst that of exotics, notably for the Arboretum, is carried out at the Union Bay Gardens.

Union Bay is the location for the new, ecologically designed Merrill Hall (which replaces the original hall destroyed by arsonists some seven years ago), the Northwest Horticulture Hall and other buildings and greenhouses. In Merrill Hall itself are the Otis Douglas Hyde Herbarium and the Elisabeth C. Miller Library. The herbarium, building on the voucher collection from the Arboretum, has one of the most significant collections of cultivated plant specimens in North America; the library, building on collections formerly held at the Arboretum, is the best plant library in the Pacific Northwest. (During my tenure, 90 percent of the collection became available for the first time for public circulation.)

Merrill Hall also hosts the offices of the UWBG director, the UWBG head of restoration and the UWBG head of conservation;

each of these positions was created during the years 2005-2008. Other developments at Merrill Hall during the same years include the upgrading of the Seattle Garden Club's "entry" garden, which was remodelled—at my suggestion—as a fragrance garden and munificently funded by the Club.

Achievements at the Arboretum

Whilst waiting in Australia to assume my role as director, I became a participant in the ongoing discussion concerning the implementation of the Master Plan for the Arboretum. The restoration of Duck Bay already was well in hand and there were preliminary discussions concerning the "south entry," or "Madrona Terrace" development, which was envisioned as being the most significant improvement in the Arboretum since its inception. The original plans called for a series of gardens showcasing plants from different parts of the world; with my perspective as an inhabitant of Australia, I suggested that the project focus exclusively on countries located in the dynamic zone of the Pacific Rim.

The project was redesigned to feature the gardens we now see emerging—collections of plants native to China, New Zealand, Australia, Chile and our own Cascadia. The Foundation's fundraising consultants proposed the campaign name "Pacific Connections" and then allowed me to propose that name for the new garden itself.

Planning for the new Pacific Connections Garden

Within a few days of my arrival in Seattle, I chaired my first Curation Committee meeting. There I decided to make provisions to remove the plants that inhabited the future site of the new Pacific Connections Garden (PCG). These plants included our internationally significant collection of hollies.

At the same meeting David Zuckerman proposed that we consider the lozenge of land lying between Boyer, Interlaken and Lake Washington Boulevard as the new home for the hollies. This area then contained the lilac collection (growing under less than ideal conditions), some important trees, and a degraded secondary woodland rife with invasives and hazardous poplars. So before we could transplant the hollies to their new site, we had to move the lilacs to a site with better growing conditions: Azalea Way. (We propagated specimens of the lilacs that we were unable to transplant; these specimens eventually will be planted in the new site.)

The other collections in the future Pacific Connections Garden site were similarly assessed, and those that could be moved were prepared for transplantation; those that could not be moved had to be incorporated into the new design. Meanwhile, I visited the Botanischer Garten in Berlin and discussed with its staff how to establish and maintain something I had long admired—stands of forest and woodland representative of different parts of the world.

Drawing on this discussion, I proposed that we establish forest types from the five countries represented in the new PCG. The present design calls for the woodland and forest stands being fronted by horticultural, rather than ecological, displays. These displays, which border the PCG meadow and interpretive shelter, will include the "best" plants from each region that can be grown in Washington.

The Seattle-based landscape design firm The Portico Group worked with the Curation Committee and the renowned plant hunter and nurseryman Dan Hinkley to complete the final plans for the PCG. Meanwhile—with the generous support of The Pigott Family—the Pomegranate Center, a non-profit community design and development organization, was engaged to design an interpretive shelter for the new garden. The shelter went through a number of iterations before the final design was created; it features cedar timbers recycled from the Arboretum and a "green" roof that both reflects the University's values of sustainability and mirrors the "green" roof and

recycled materials featured at Merrill Hall. The Arboretum Foundation set about fundraising and the results of their success are now evident—the interpretive shelter is currently under construction and opens to the public later this year.

It seemed to me that the hollies should be arranged on their new site according to their evolutionary history, or genealogy—an approach I believe to be novel in a botanic garden. The Arboretum already intended to cull invasive (female) European holly (*Ilex aquifolium*) cultivars as part of a nationally-sponsored effort to remove invasives and discourage their further planting. This undertaking led me to propose that we educate the public about invasives by planting the finest European holly female cultivars, along with such other nightmare invasives as European ivy (*Hedera helix* cultivars) and Himalayan blackberry. They were to be planted in a bird-proof cage, since birds disperse seeds. Generous donor Carla Waterman and the University of Washington provided funding for the transplanted holly collection, while Iain Robertson, associate professor of Landscape Architecture and adjunct professor in the College of Forest Resources, created an exciting design, *pro bono*, to realise our ideas.

At the same time, the City of Seattle was installing much-needed irrigation lines in the Arboretum, which were funded through the ProParks Levy. One such line was to pass through the holly garden, so there was yet another factor to take into account in the new design for the transplanted holly collection. In the fall of 2007, University of Washington crews sculpted the landscape for the new holly site and then began the migration (as if Burnham Wood to Dunsinane) of the hollies that could be moved. Meanwhile, specimens of the ones that could not be moved were being propagated at the Union Bay Gardens; in the future they will join the transplanted specimens.

Our restored holly collection will once again be one of the nation's finest—but now it will feature both evolutionary and ecological lessons for our visitors. On top of this, the next UWBG expedition to China will have as its main focus the collection of seed from holly species to ensure our position as the botanic garden with the most holly species growing in North America.

The same expedition also will collect other plants for the China Garden collections in the PCG. There will be a series of expeditions to the other countries represented in the PCG, beginning with New Zealand, to collect propagules of the species to be planted in each representative country's new display

ABOVE: *Ilex colchica* is one of several hundred holly species and cultivars propagated at the Union Bay Gardens for planting in the Arboretum's newly transplanted and expanded holly collection.

forest. The new species will be planted around currently standing trees, and as those trees die they will be replaced with additional specimens of the new species.

I was particularly delighted to be able to prepare a memorandum of agreement with Christchurch Botanic Gardens, New Zealand to acquire with them plant materials needed for the New Zealand plant collection in the PCG. The Christchurch-Seattle Sister City Committee provided crucial assistance in this effort. The Committee previously had played a key role in constructing the Arboretum's New Zealand High Country exhibit, which has inspired the eco-geographical focus of the entire new PCG.

Existing Arboretum Tree Collections

Those standing trees that will not be removed from the future Pacific Connections Garden site represent some of the internationally significant plant collections at the Arboretum. Some years ago, the holly collection was nationally recognized as part of the decentralized North American Collection of that genus. The North American Plant Collections Consortium—sponsored by the American Public Gardens Association—has recognized our oak collection (which probably has more species growing here than in any other botanic garden) as well as our maple collection. Although we are rightly much concerned with promoting new developments in the Arboretum, the *raison-d'être* of an arboretum is its collections, and we have an international obligation (as well a local one, in that the Arboretum is the State Arboretum) to curate these collections for posterity.

Very important among those "iconic" collections are those of *Nothofagus, Sorbus* and *Viburnum*—each the best collection of its kind in North America; the conifers in our Pinetum comprise one of the best collections in the world. Over the last three years, the UW and City of Seattle crews (the latter notably under the enthusiastic management of Rory Denovan) have worked to renovate the Pinetum with new plantings. Improved trails and a magnificent wooden bridge spanning the Pinetum's wettest terrain are compliant with the requirements of Americans with Disabilities Act. With the running of new irrigation lines through the length of the Arboretum, the repaving of much of Arboretum Drive and the injection of funds into the new developments at the Japanese Garden, the significance of the City's support for the Arboretum cannot be overstated.

Two of my most important goals were to ensure equitable pay for our horticultural staff and to enhance funding of our Arborist Program. The Arboretum Foundation assisted enormously in this funding effort, which led to our suffering far less damage than we otherwise would have in the winter storms of recent years, most notably the one at the end of 2006. Above all, I feel that the founding of the UWBG Director's Guild (which includes several members of the Arboretum Foundation) has done much to inform the community, through personal networks and events, of our work. I am enormously grateful to those Founding Members who agreed to serve.

Looking Ahead

Engraved boulders recently placed at the north and south entries to the Arboretum point out its boundaries. They resemble boulders sited at UWBG headquarters and symbolize the remarkable managerial symbiosis of the City and University.

Completion of the first phase of the Pacific Connections Garden should be the catalyst for even wider public interest in the Arboretum and the work of UWBG in general. With something to show on the ground, it will be the spur for increasing numbers of donations to the Arboretum Foundation and the Pacific Connections Campaign.

Meanwhile, there are a number of other important projects with much smaller-priced tickets than PCG that can be executed rather quickly while also raising the profile of the Arboretum. We have been talking with the

Montlake community about forming a Children's Arboretum near the western pedestrian portal (Lynn Street) to complement the Children's Garden proposed for the Union Bay Gardens. The Seattle landscape firm The Berger Partnership PS has outlined a revised Master Plan for the Union Bay Gardens that includes "issue-based" gardens to help the public understand the ecological issues humanity now faces—to my mind the key role for botanic gardens in the modern world. The new holly collection area needs to be completed, as does the renovation of the camellia collection, the design for which Iain Robertson has completed.

Iain's contribution to the Arboretum, from the Winter Garden onwards, has been crucial to the upgrading of not only the Arboretum but also the plantings around Merrill Hall; we are all indebted to him for his expertise, wisdom and flair. Moreover, he has been one of the most eloquent and persuasive voices in the mediation process concerning the replacement of the SR 520 bridge. This project dominated my three years in Seattle and occupied a great deal of my time. We successfully argued that alternatives to those initially under consideration must be entertained for the good of UWBG and the Arboretum in particular. There was national and international outrage in the botanic gardens world over the bridge project's potential impact on the Arboretum and its wetlands.

This debate has brought attention to the importance of the Gardens and the Arboretum in particular. The launching of UWBG's "Camas Quarterly" newsletter, which is internationally admired, and its electronic sister-publication, "E-Flora," very effectively represent the Gardens to many people who previously knew little of our work.

As to UWBG as a whole, there are good signs for the future in that we now have a major gifts officer to promote fundraising for garden projects. And the University has agreed to establish a faculty post associated with our proposed Plant Protection Unit, which is meant to facilitate research and serve the horticultural public. We look forward to establishing a second such post and associated facilities as part of the Union Bay Gardens and Natural Area Master Plan.

The Miller Foundation has done so much for the Miller Library and the Miller Seed Vault (which is linked to Kew's Millennium Seed Bank). During my tenure, the Foundation agreed to provide funding to archive materials related to the rich horticultural history of the Pacific Northwest. I look forward to hearing that funding for preparation of an oral history of horticulture at the Arboretum and throughout the Seattle area also has been secured.

2009 is the 75th anniversary of the 1934 arrangement that led to the establishment of the Arboretum as we know it. It is also Kew Gardens' 250th anniversary and the 150th of both the Missouri Botanical Garden and the Singapore Botanic Gardens. I hope to see the Arboretum rightly recognised in the international celebrations that next year will surround these acclaimed botanic gardens.

In short, these are exciting times for the Arboretum—a forward-looking organization comprising dedicated faculty, staff and volunteers. Leaving our achievements and so many good friends and colleagues in this beautiful city was very hard for me, but I feel honoured and privileged to have been part of the team that accomplished so much over the last three years. I look forward to visiting in the future and to hearing, in the meantime, that our momentum continues unabated. ~

David Mabberley is Keeper of the Herbarium, Library, Art and Archives at the Royal Botanic Gardens Kew, England and is a professor in the Faculty of Science in the University of Leiden, The Netherlands. He was Director of UWBG, Soest Professor of Horticultural Science in the College of Forest Resources, and Adjunct Professor in the College of Arts and Sciences, 2005-2008.

The Bartrams and Emily Dickinson: Lovers of Plants

By Brian Thompson

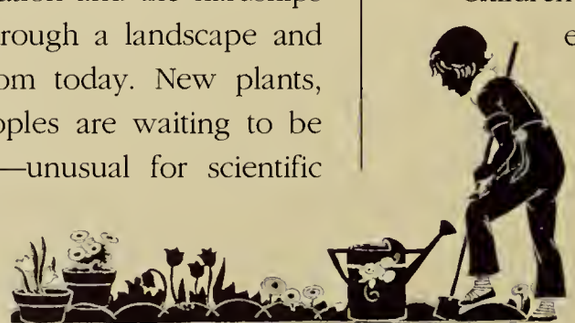
"My father, John Bartram, is a botanist. He studies plants and trees. I help him with his work. My name is William, but everyone calls me Billy. Father calls me his 'little botanist.'"

The Little Botanist

Thus Deborah Kogan Ray begins her first-person narrative of the life of William Bartram (1739-1823) in "The Flower Hunter," a book written for children that can be read with enjoyment by adults as well. Much has been written about this early American naturalist and artist—and his equally famous botanist father, John Bartram (1699-1777)—but none can match the charm of this 40-page book, which is richly illustrated by the author.

"The Flower Hunter" tells the story of a young boy who grows up on a farm near Philadelphia and early becomes fascinated by his father's love of plants and botanical exploration. Throughout his childhood, Billy's father leads him on field trips that range farther and farther away from the farm. Eventually their roles reverse, and the son becomes an explorer who returns home triumphantly to share his discoveries about the natural world with his aging father.

Kogan Ray places her straightforward account against a wider backdrop—the struggles of an emerging nation and the hardships and thrills of travel through a landscape and time very different from today. New plants, animals and even peoples are waiting to be found, described and—unusual for scientific traditions of the time—cherished in their natural state.



Why do the Bartrams remain important to us now? In 1765, in coastal Georgia, they together discovered the Franklin tree (*Franklinia alatamaha*) that a short time later became extinct in the wild. An example of this beautiful tree, which blooms in autumn while its foliage is turning bright red, can be found on the eastern edge of the Arboretum's Azalea Way, about 100 yards north of the Winter Garden.

While today's botanic gardens and arboreta would be duller places without the Franklin tree, the Bartrams left us far more than this one showstopper. Their farm, which became one of the first botanic gardens in the United States, is open to the public. (See Bartram's Garden at www.bartramsgarden.org.) And they were instrumental, along with their friend Benjamin Franklin and others, in developing an American tradition of studying the natural sciences.

Perhaps best, they both wrote detailed journals of their travels. William's "Travels," published in 1791, is still in print today and is credited by Kogan Ray with having "inspired Henry David Thoreau and Charles Darwin with its observations of the world of nature."

The Visionary Naturalist

Children's books may lead to some interesting discoveries in adult literature. Kogan Ray's little botanist, Billy, is portrayed as an adult in Judith Magee's "The Art and Science of William Bartram." But in this account, the leaf-drawing boy grows

up into being far more than the intrepid explorer and skilled artist of nature depicted in "The Flower Hunter." And despite its title and the inclusion of nearly 70 of William's drawings—many of them of birds, fish and reptiles, in addition to plants—this is not primarily an art book.

Instead, Magee's book is a wide-ranging narrative that places the Bartrams, especially William, in the context of contemporary developments in science, philosophy, religion, culture and politics. Excerpts from publications, journals and correspondence are skillfully woven into a narrative that I found as engaging as the simple tale Kogan Ray tells. Extensive asides profile important associates, many of whom themselves were instrumental in the beginnings of the American scientific community.

Magee suggests that William Bartram was not fully appreciated in his own time and place. His astute, far-sighted concerns about the ecology (well before the term was coined) of the natural world, and his beliefs in the equality of Native Americans, were views shared by very few of his contemporaries. The writer judges William as an influence in developing a specifically American approach to methods and practices used in studying botany, zoology and ethnography. She also discusses him as an inspiration for European poets of the Romantic movement at the turn of 19th century.

Magee concludes by saying that today scholars often see William "as a pioneer in the field of ecology, a radical rather than a conservative in his politics, nationalism and religion, and a Romantic rather than a man of the Enlightenment." It is also noteworthy that he spent a long retirement in his garden, as it "remained the single most important thing" in his later years.

The Young Poet

One who may have appreciated William Bartram—although I've found no link between them—is the poet Emily Dickinson (1830-1886). It is well known that she, like William, loved plants and her garden. A most unusual, recent publication by Harvard University Press highlights this love.

"Emily Dickinson's Herbarium" is a full-size facsimile of an album of pressed flowers, leaves and other plant parts created by Dickinson in the 1840s, when she was a student at Amherst Academy. There is no stated purpose or obvious order to this collection, which includes both native plants of western Massachusetts and specimens that could only have come from a garden or conservatory. As a traditional herbarium its value is limited, since none of the important collection information (date, exact location, etc.) is recorded.

Over 400 specimens survive, some accurately labeled by the author using botanical guides of the day, others with descriptive, if incorrect, Latin binomials (for example, "*Petunia alba*" for a white petunia). Others have lost their labels. The Harvard University

Herbaria staff has identified nearly all of the specimens, despite numerous challenges. A detailed catalog records their extensive detective work.

But the value of this book is not as a traditional herbarium; I see it as a piece of history that provides an intriguing glimpse into the life of one of our country's most valued poets. And, if you've ever attempted your own collection of pressed plants, you will appreciate the considerable effort taken not only to produce this book but also to preserve it for over 160 years.

Accompanying essays document the herbarium's conservation, the history of the family battles over Dickinson's legacy, and the acquisition of the Dickinson collection for Harvard. Best is the article by Richard B. Sewall, "Science and the Poet: Emily Dickinson's Herbarium and 'The Clue Divine,'" in which he begins, "Take Emily's Herbarium far enough, and you have her." Perhaps. In any case, he argues for the close connection she found between science and art—an argument that could be equally well applied to William Bartram.

Because of its size, "Emily Dickinson's Herbarium" cannot be checked out of the Miller Library; it is available, however, to study and view in the library. The two Bartram books circulate, as do others on the accompanying book list, and I encourage you to explore this bit of heritage that we, as plant enthusiasts, can proudly call our own.

Note: The Magee and Harvard books both were nominated this year for the Council on Botanical and Horticultural Libraries' Annual Literature Awards. I'll announce the winners in the next issue of the Bulletin.

Brian Thompson is curator of horticultural literature at the Elisabeth C. Miller Library, University of Washington Botanic Gardens and a member of the editorial board of the "Bulletin."

BIBLIOGRAPHY

Reviewed Books

Dickinson, Emily. "Emily Dickinson's Herbarium." Cambridge, MA: Belknap Press of Harvard University Press, 2006. ISBN: 0674023021, $125.00.*

Magee, Judith. "The Art and Science of William Bartram." University Park, PA: The Pennsylvania State University Press, 2007. ISBN: 9780271029146, $45.00.

Ray, Deborah Kogan. "The Flower Hunter: William Bartram, America's First Naturalist." New York, NY: Farrar, Straus and Giroux, 2004. ISBN: 0374345899, $17.00.

Also Recommended

"Bartram's Garden Catalogue of North American Plants, 1783." From the Journal of Garden History vol. 16, No. 1 "Spring 1996." London, England; Washington, DC: Taylor and Francis, 1996. No ISBN. Not available.*

Bartram, John. "John and William Bartram's America: Selections from the Writings of the Philadelphia Naturalists." Garden City, NY: Doubleday and Company, Anchor Books, 1961. No ISBN. Only available used, $20.00-$85.00.

Bartram, William. "Travels, and Other Writings / William Bartram." New York, NY: Library of America, 1996. ISBN: 0188301116, $40.00.

Farr, Judith. "The Gardens of Emily Dickinson." Cambridge, MA: Harvard University Press, 2004. ISBN: 0674012933, $20.00.

Hoffman, Nancy E. and John C. Van Horne (eds.). "America's Curious Botanist: a Tercentennial Reappraisal of John Bartram, 1699-1777." Philadelphia, PA: American Philosophical Society, 2004. ISBN: 087169249X, $40.00.

Pennsylvania Horticultural Society. "From Seed to Flower: Philadelphia, 1681-1876: a Horticultural Point of View." Philadelphia, PA: Pennsylvania Horticultural Society, 1976. No ISBN. Only available used, $16.00-$29.00.

Philadelphia Botanical Club. "An Account of the Two Hundredth Anniversary of the Founding of the First Botanic Garden in the American Colonies by John Bartram. Celebration held in Philadelphia, June Fifth and Sixth, Nineteen Hundred Thirty-One." Philadelphia, PA: The Club, 1931. No ISBN. Not available.*

All books are in the collections at the Elisabeth C. Miller Library and except as marked (*), are available to check out.

continued from page 15

and fessed up. Being a very good-natured person, Maria just laughed it off and told us not to worry. She quickly learned how to identify the offending—and thankfully not-yet-flowering melons—and proceeded to pluck them from her pots. The white garden had been saved, and it continued to blossom for the rest of season in monochromatic splendor.

Epilogue

Or so we thought! The compost conundrum was all but forgotten, until one day in late July when I was over on Maria's terrace watering her plants (she had gone upstate for a few weeks, and I was caring for the garden in her absence). I noticed—hidden from immediate view—a vine tangled around some of the inner stems and branches of the rose. I followed the trail of the vine as it as curled off the bush, onto the side railing of the terrace and down into the space behind the planter. I moved the planter a little, and—wait for it—out rolled a small, ripening melon about the size of a softball.

I was flabbergasted. Despite our best efforts to tame Nature (even in this tiny container garden), she had found a way to foil our plans—to sneak some yellow into our perfect palette of white. But I wasn't feeling disappointment. Quite the opposite: I felt thrilled—thrilled by the surprise and the spontaneity of the event, not to mention the determination of this little plant and the bounty it produced. I felt like I'd accidentally happened upon one of the true, perhaps underappreciated, pleasures of gardening—the joy of the unexpected...the joy of discovering natural processes, far beyond our capacities to control or predict, at work in the garden ecosystem.

Or something like that. As I stood there, looking at the resilient and marvelous little melon, it seemed to me as fitting an epitaph for Maria's mom as any orchestrated collection of ornamentals. I returned the fruit to its hiding place and left it for Maria to discover. When she eventually did, she was pretty thrilled about it too. ~

WHITE GARDEN HISTORY AND DESIGN

The idea of creating a one-color garden can be traced back to the English gardener and artist Gertrude Jekyll (1843-1932). Famed for her painterly approach to creating garden borders, she was very fond of white flowers and found them useful for highlighting shady backgrounds and complementing pastels. In her book, "Color Schemes for the Flower Garden" (1921), she doesn't discuss a white garden *per se*, but does describe other "gardens of restricted coloring," such as a gray garden and green garden. From these descriptions, we can deduce that she thought white flowers looked most effective against a background of strongly textured or rich green foliage. The most famous white garden of all was the one created by English writer and gardener Vita Sackville-West (1892-1962) at Sissinghurt Castle in Kent. White-flowering plants such as royal lily (*Lilium regale*) and *Hydrangea arborescens* 'Grandiflora' predominated in the original planting, but silver- and grey-leaved plants such as sea buckthorn (*Hippophae rhamnoides*) and lamb's ears (*Stachys byzantina*) also found a place, as did the occasional pale pink primula—adding contrast, and surprise. Neither Jekyll nor Sackville-West recommended a strict adherence to just one color in the garden.

NIALL DUNNE is communications manager at the Arboretum Foundation and a member of the "Bulletin" editorial board. He is the former editor of Brooklyn Botanic Garden's "Plants and Garden News."

BIBLIOGRAPHY:

Brown, Deni. "Alba: The Book of White Flowers." Portland, Oregon: Timber Press, 1989.

molbaks
garden+home

Inspiring Gardeners Year-round
with a Distinctive Selection of. . .

- Trees
- Perennials
- Groundcovers
- Shrubs
- Annuals
- Vines

Free Horticultural Seminars
and Special Events

Woodinville • 13625 NE 175th • www.molbaks.com • 425-483-5000 • 1-866-5225

Arboretum Foundation

Washington Park Arboretum
2300 Arboretum Drive East
Seattle WA 98112-2300
www.arboretumfoundation.org

NONPROFIT ORG.
US POSTAGE
PAID
SEATTLE, WA
PERMIT NO. 126

An arboretum is a dynamic collection of woody plants for research, education, conservation and display.

**********AUTO**5-DIGIT 98105
Becky Johnson
3817 42nd Ave NE
Seattle WA 98105-5444